

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[SWH-FRL 2871-7]

Mining Waste Exclusion

AGENCY: Environmental Protection Agency.

ACTION: Notice of proposed rulemaking.

SUMMARY: On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to the Resource Conservation and Recovery Act (RCRA). Section 7 of these revisions (the "Bevill Amendment") excluded "solid waste from the extraction, beneficiation, and processing of ores and minerals" from regulation under Subtitle C of RCRA pending completion of studies called for in Sections 8002 (f) and (p) of RCRA. On November 19, 1980, EPA amended its regulations to reflect this exclusion (45 FR 76618). In the preamble to that rulemaking, EPA tentatively interpreted the exclusion to encompass "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals" (45 FR 76619). Today's proposed rulemaking, if promulgated as a final rule, would eliminate from the mining waste exclusion many wastes from processing ores and minerals (other than phosphogypsum, bauxite refining muds, primary metal smelting slags, and slag from elemental phosphorus reduction) and would relist six smelting wastes previously listed as hazardous. EPA believes that this revised interpretation more accurately represents the intent of Congress when it enacted the mining waste exclusion and best serves the policy objectives of RCRA.

DATE: EPA will accept public comments on this proposal until December 2, 1985.

The Agency will hold a public hearing on November 14, 1985; see "SUPPLEMENTARY INFORMATION" section for details.

ADDRESSES: Comments should be sent to the Docket Clerk, Office of Solid Waste (WH-565A), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. The public docket for this proposal is available in Room S212 at the above address for viewing from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding holidays. The public hearing is in Washington, DC at the Department of Health and Human Services, North Auditorium, 330 Independence Avenue SW. Attendees should use the "C" Street entrance.

FOR FURTHER INFORMATION CONTACT: RCRA/Superfund Hotline at (800) 424-9348 or 302-3000. For technical information contact Dr. Dexter Hinckley, U.S. Environmental Protection Agency, Office of Solid Waste (WH-565), 401 M St. SW., Washington, DC 20460, (202) 302-2791.

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I. History of Mining Waste Exclusion

In Section 8002(f) of the Resource Conservation and Recovery Act (ACRA) of October 21, 1976, Congress instructed the Administrator to conduct, in consultation with the Secretary of the Interior, "a detailed and comprehensive study on the adverse effects of solid wastes from active and abandoned surface and underground mines on the environment, including, but not limited to, the effects of such wastes on humans, water, air, health, welfare, and natural resources."

On December 18, 1978 (43 FR 58,946), EPA proposed regulations for hazardous waste management under Subtitle C of RCRA. These proposed regulations, among other things, had fewer requirements for a universe of so-called "special waste" that are generated in large volumes, were thought to pose less of a hazard than other hazardous wastes, and were not thought to be amenable to the control techniques proposed for hazardous waste treatment, storage and disposal facilities. EPA identified waste materials from the "extraction, beneficiation, and processing of ores and minerals" as special wastes under the proposed regulations.

On May 19, 1980 and July 16, 1980, EPA listed as hazardous eight waste streams from primary metal smelters. Also on May 19, 1980, when it

promulgated the final hazardous waste management regulations, EPA stated that a "special waste" category was unnecessary because: (1) the EP toxicity and corrosivity characteristics of hazardous waste had been narrowed, thus excluding most "special wastes" from control, and (2) the Agency intended to promulgate tailored standards for land disposal, as needed, in future regulations.

On October 21, 1980, Congress enacted Pub. L. 96-482 which included various amendments to RCRA. Section 8002 was amended to include subsection (p), which requires the Administrator to study the adverse effects on human health and the environment, if any, of the disposal and utilization of "solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore." Section 7 of these amendments (the "Bevill Amendment") amended Section 3001 of RCRA to exclude these wastes from regulation under Subtitle C of RCRA pending completion of the studies called for in Sections 8002(f) and (p).

On November 19, 1980, EPA published an interim final amendment to its hazardous waste regulations to reflect the mining waste exclusion. The regulatory language incorporating the exclusion is identical to the statutory language (except the phrase "including coal" was added). In the preamble to the amended regulation, however, EPA tentatively interpreted the exclusion to include "solid waste from the exploration, mining, milling, smelting, and refining of ores and minerals" (emphasis added), (45 FR 76118, 76619).

For consistency with this interpretation in the November 19, 1980 amendment, the Agency also amended 40 CFR Part 261 to suspend the listings of specific waste streams associated with smelting as hazardous wastes (46 FR 4614, January 16, 1981 and 46 FR 27473, May 20, 1981). These waste streams are associated with the primary copper, lead, zinc, aluminum, and ferroalloy industries (see Table 1).

In the November 19, 1980 notice, EPA made it clear that it intended to reconsider ("over the next 90 days") its interpretation of the exclusion:

The Agency fully intends to consider the appropriate scope of the statutory exclusion and may well take rulemaking action to lessen the scope of the exclusion. . . . In particular, EPA questions whether Congress actually intended to exclude . . . wastes generated in the smelting, refining, and other processing of ores and minerals that are further removed from the mining and beneficiation of such ores and minerals.



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TABLE 1.—SMELTER WASTES LISTED AS HAZARDOUS

Industry	EPA hazardous waste No.	Hazardous waste	Hazard code
Primary copper	K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead	K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc	K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
	K067	Electrolytic anode slimes/sludges from primary zinc production.	(T)
	K068	Cadmium plant leach residue (iron oxide) from primary zinc production.	(T)
	K088	Spent potliners from primary aluminum reduction.	(T)
Primary aluminum	K090	Emission control dust or sludge from ferrochromium-silicon production.	(T)
Ferroalloys	K091	Emission control dust or sludge from ferrochromium production.	(T)

In the November 19, 1990 notice, EPA indicated that any subsequent action to narrow the scope of the exclusion would be a formal rulemaking: "... the Agency, in subsequent rulemaking action, may further narrow the exclusion. If EPA narrows the scope of the exclusion . . . in future rulemaking, those who generate, transport, store, treat or dispose of wastes affected by such a change will have six months to prepare for compliance with the regulations."

Each of the commenters representing the mining industry who addressed EPA's interpretation of the exclusion agreed that all smelting and refining wastes were covered by the Bevill Amendment. The commenters relied primarily on Rep. Williams's remarks during floor debate in which he quoted a National Academy of Sciences report stating that slag wastes generated by the smelting of copper are "basically inert and weather slowly." However, in its comments, the Bureau of Mines in the Department of the Interior stated that it believed the exclusion was meant to cover "the overburden, waste rock, and mill tailings from mining or milling," but not "solid wastes from refining or further beneficiation carried out as a discrete process."

Since Congress enacted the mining waste exclusion and EPA published its interpretation of the exclusion in 1980, EPA and State regulatory agencies have had to make dozens of individual determinations as to whether a given waste is a mining waste and therefore excluded from Subtitle C requirements. It has been particularly difficult to determine what operations constitute "processing of ores and minerals." As a general rule, EPA has interpreted this phrase to include any operation which further refines or purifies the product being mined (often a metal). Combining

the product with another material (e.g., alloying) and fabrication (any sort of shaping that does not cause a change in chemical composition) is not considered "processing of ores and minerals." However, applying this approach, it is still often unclear whether a waste qualifies for the exclusion. For instance, EPA has said that wastes produced by refining copper from 98 to 99 percent purity are excluded. Yet, copper with 98 percent purity can be marketed as a finished product for certain purposes; it does not conform to the usual definitions of "ore" or "mineral."

These determinations of exclusionary status have created a number of inequities among industry segments. For instance, wastes from primary lead smelters are excluded from regulation by EPA's current interpretation of the mining waste exclusion, but similar wastes from secondary lead smelters are subject to full hazardous waste regulation because the smelter input is scrap, not an ore or mineral. In another example, sulfuric acid which is derived from naturally occurring sulfur in certain ores and is removed by acid plants at copper, lead, and zinc smelters is currently excluded. However, spent acids from other industries are regulated as hazardous.

Because of the uncertainties associated with determining the scope of the mining waste exclusion, EPA and State regulatory agencies have had to expend considerable time and resources on lengthy investigations to determine the exact sources of wastes, whether the input to an operation is an ore/mineral or scrap metal (or some combination of both), and the extent to which waste is recycled to production processes. Rather than continue to make these detailed determinations on a case-by-case basis, it has long been thought that some general clarification of the scope of the

mining waste exclusion was necessary. More importantly, as explained in more detail below, it has become increasingly clear that EPA current interpretation does not best serve the Congress's objective in enacting the Bevill Amendment. Instead it has had the effect of excluding a broad range of wastes, many of which are hazardous, and are often generated many steps beyond the initial extraction and beneficiation of ores and minerals.

II. Analysis of Options Available

EPA evaluated three options before preparing this proposal:

(1) Retain the current interpretation and conduct a Section 8002 study on processing wastes that are currently excluded, but are not part of the current Section 8002 study of mining waste.

(2) Narrow the exclusion to include only large volume wastes from processing ores.

(3) Narrow the exclusion to include only large volume wastes from processing *metallic* ores.

In consulting various sources, we have found no standard, accepted definitions, i.e., "plain meanings," for the terms of the exclusion, particularly "processing." Therefore, we reviewed the legislative history of the mining waste exclusion for guidance. In evaluating the options, we relied on the following indications of Congressional intent:

- During the discussion of the mining waste exclusion on the House floor, Rep. Williams of Montana quoted a National Academy of Sciences report stating that slag wastes generated by the smelting of copper are "basically inert and weather slowly. The slag produced 2,500 years ago at King Solomon's mines north of Eliat, Israel has not changed perceptibly over time." 126 *Cong. Rec. H. 1104* (daily ed. February 20, 1980). Rep. Williams went on to say that such wastes should not be subject to RCRA. His statements were unchallenged in subsequent debate on the amendment. In addition, in his "Extension of Remarks" in the Congressional Record, Rep. Bevill, the amendment's sponsor, stated that "the list of waste materials in the amendment . . . (should) be read broadly, to incorporate the waste products generated in the real world." 126 *Cong. Rec. E 4957* (daily ed. November 17, 1980).

- The legislative history of the Bevill Amendment indicates that EPA's regulatory concept of a "special waste" should be used as a guide in discerning Congressional intent. The Conference Committee Report states that the 1980 RCRA amendments suspend regulation of "a category designated as special

wastes" in regulations proposed by the Agency under Subtitle C on December 18, 1978. S. Rep. No. 96-1010, 96th Cong. 2d Sess. 32 (1980) (Conference Committee Report). In addition, Rep. Santini stated that he believed the amendment would "defer regulation of 'special waste' until after EPA studies the need to do so." 126 Cong. Rec. H. 1089 (daily ed. February 20, 1980).

- In the preamble to the 1978 regulations, EPA explained that it intended to treat special wastes differently because they were generally thought to be high volume, low toxicity materials, and not amenable to management under the proposed standards for hazardous waste treatment, storage, and disposal facilities. While EPA listed several smelting wastes as hazardous wastes, only a few listed smelting wastes were included in the "special waste" category. Section 250.46-3 of the 1978 proposal, which was titled "Phosphate rock mining, beneficiation, and processing waste," listed "slag . . . from elemental phosphorus production" as one of the wastes subject to special waste regulations.¹

- In the legislative history accompanying the 1984 amendments to RCRA, the Senate Committee on Environment and Public Works stated:

Solid wastes from mining and mineral beneficiation and processing are primarily waste rock from the extraction process and crushed rock, commonly called tailings, produced from concentrating steps such as grinding, crushing, sorting, sizing, classification, washing, dewatering, amalgamation, gravity treatment, flotation, agglomeration and cyanidation. The 1980 amendments covered wastes from the initial stages of mineral processing, where concentrations of minerals of value are greatly increased through physical means, before applying secondary processes. Smelter slag might also be included. Massive volumes of this waste ore are produced annually by mining and mineral processing facilities—roughly estimated by the American Mining Congress (AMC) to be approximately 1.75 billion tons in a typical year, which is clearly significantly greater in volume than the solid waste generated by all other industries combined. These wastes were considered "special wastes" under the 1978 proposed regulations as being of large volume and relatively low hazard.

Each of the options is evaluated below in light of these indications of Congressional intent:

¹ Although the process for obtaining elemental phosphorus from phosphate is called phosphorus reduction, rather than smelting, both processes have the same purpose (i.e., separating the desired element from the ore) and comparable wastes (e.g., slag).

Option 1—Retain current interpretation and conduct a Section 8002 study on wastes that are currently excluded, but are not part of the current Section 8002 mining waste study.

EPA believes that this option does not reflect either the special waste concept or the intent of Congress as described above. This option would entail studying many low volume wastes, some of them hazardous, generated by facilities processing ores. It would dilute resources available for studies on large volume wastes of interest to Congress.

Option 2—Narrow the exclusion to include only large volume wastes from processing ores.

This interpretation is most consistent with Congressional intent because it leaves large volume processing wastes (i.e., phosphogypsum from phosphoric acid plants, slag from primary smelting of metallic ores or phosphorous reduction, and muds from bauxite refining) within the exclusion, deferring their possible regulation under Subtitle C until completion of studies required for the Report to Congress on mining waste. Annual phosphogypsum disposal is approximately 47 million metric tons; slag disposal from primary metal smelters is over 4 million metric tons; slag from phosphorous reduction is over 3 million metric tons; and mud from bauxite refining is about 2 million metric tons. By limiting the mining waste exclusion to these high volume wastes, this option takes into account the references in the legislative history to high volume, relatively low toxicity wastes, i.e., "special wastes." In fact, this approach constitutes the most rigorous application of the special waste concept.

Option 3—Narrow exclusion to include only large volume wastes from processing *metallic* ores.

This option represents the narrowest possible reinterpretation of the mining waste exclusion, but it reflects only Rep. Williams's specific remarks about slag from copper smelting in Israel. It would maintain the excluded status of red and brown muds (2 million metric tons/year) produced by refining bauxite ore. However, a very large volume — processing waste, the 47 million metric tons of phosphogypsum produced each year by phosphoric acid plants, would no longer be within the exclusion. This option also would remove another large volume waste from the exclusion: slag produced by the facilities extracting elemental phosphorus from phosphate ore, because phosphorus is not a metal.

Based on the above analysis of Congressional intent, EPA believes that it was incorrect in interpreting the

mining waste exclusion as encompassing all wastes from primary smelting and refining. Therefore, EPA is proposing to reinterpret the mining waste exclusion so that red and brown muds, phosphogypsum, and primary processing slags are the only processing wastes that remain excluded from regulation under Subtitle C of RCRA. All other wastes from processing ores and minerals would be subject to Subtitle C regulation if the wastes are hazardous.

EPA is aware that there are a large number of wastes that could arguably be viewed as wastes from the "processing" of minerals or ores. However, we believe the term "processing" must be interpreted in light of the criteria outlined above. Based on these criteria, we conclude that not all such wastes are properly excluded from regulation under the mining waste exclusion primarily because they do not meet the "special waste" criteria, i.e., high volume, relatively low toxicity. For instance, as mentioned earlier, the listings of certain smelting wastes as hazardous waste were suspended after the Bevill Amendment was enacted even though the rulemaking records for these listings show they are hazardous and these listings were not challenged.

In addition, many of the wastes excluded by EPA's 1980 interpretation of the mining waste exclusion are not high volume wastes.² The processing wastes we are proposing for retention within the exclusion range in volume from 2 to 47 million metric tons per year. These volumes are comparable to the other special waste categories proposed December 18, 1978. See 43 FR 58992. For example, utility waste was estimated at 66 million metric tons per year and cement kiln dust at 12 million metric tons per year. The volumes of wastes that would be removed from the exclusion as a consequence of the reinterpretation are substantially smaller in volume than the wastes that would remain within the exclusion. In fact, these waste volumes are generally smaller than the volumes already subject to Subtitle C regulation in other (non-mining) industrial sectors.

EPA requests public comment on the proposed reinterpretation of the mining waste exclusion. Commenters should

² Based on the various indications of Congressional intent described in the text, EPA believes it is reasonable to rely primarily on volumes of waste generated to determine which wastes should have been excluded by the Bevill Amendment. However, it may well be appropriate to consider additional factors in making regulatory decisions regarding waste with hazardous characteristics similar to those of the high volume wastes covered by the Bevill Amendment.

identify any other processing wastes that meet the "special waste" criteria and therefore should remain within the mining waste exclusion.

III. Proposed Relisting of Smelting Wastes

A. General

EPA proposes to relist as hazardous six wastes (Table 2) associated with smelting operations that were removed from the listing regulations after the Bevill Amendment was enacted.³ As explained previously, EPA believes this proposed interpretation more accurately represents the intent of Congress when it enacted the mining waste exclusion; therefore, we also believe it is appropriate to propose to relist those wastes that were suspended because they fell under our 1980 interpretation of the wastes subject to the exclusion. While we are requesting comment on the revised interpretation, we are not requesting comment (except as specified below) on the specific basis for the proposed relisting of these wastes as hazardous. (See Preambles to May 19,

1980 (45 FR 33113-115) and July 16, 1980 (45 FR 47834) Federal Register notices and background documents to these specific listings for EPA's basis in listing these wastes as hazardous.) Since it was EPA's interpretation of the Bevill Amendment, not a reevaluation of their hazard, that provided the sole basis for removing them from the regulations, it is the interpretation of that provision that should determine whether these wastes should again be listed. In fact, when these wastes were removed from the hazardous waste list, we specifically indicated that if our interpretation was modified to no longer include the smelting and refining wastes, we would add these wastes to the hazardous waste list without reproposal. See 40 FR 4614, January 18, 1981 and 46 FR 27473, May 20, 1981. If any person disagrees with the listing of these wastes based on additional information about their hazard, i.e., information which does not appear in the rulemaking record for the 1980 listings, they should explain the specific basis for their objections and provide additional information.

TABLE 2.—SMELTER WASTES PROPOSED FOR RELISTING

Industry	EPA hazardous waste No.	Hazardous waste	Hazard code
Primary copper	K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead	K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc	K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
Primary aluminum	K088	Spent potliners from primary aluminum reduction.	(T)
Ferrosilloys	K090	Emission control dust or sludge from ferrochromium-silicon production.	(T)
	K091	Emission control dust or sludge from ferrochromium production.	(T)

B. Wastewater Treatment Sludges

EPA recently promulgated effluent limitations guidelines and standards for the nonferrous metals manufacturing sector. See 40 CFR Part 421. This regulation, among other things, identifies precipitation and sedimentation using excess lime as one technology to be used as part of the Best Available Technology (BAT) for removing metals from nonferrous smelting and refining wastewaters (in some cases a second precipitation step could be conducted using sulfide as the precipitant). See 49 FR 8742, March 8, 1984. The Agency assumed (for costing purposes) that sludges generated as a result of lime precipitation would not be hazardous

under Subtitle C of RCRA if an excess of 10 percent additional lime is used; the basis for this conclusion was that these wastes are not likely to exhibit any of the characteristics of hazardous waste, including the extraction procedure (EP) toxicity characteristic.

In this proposed rule, EPA is proposing to restore the listing of three specific wastewater treatment sludges—namely, EPA Hazardous Waste Nos. K064, K065, K066—which are not likely to exhibit any of the characteristics of hazardous waste if they are generated as the result of excess lime addition (10 percent) to wastewater. See 49 FR 8742. Although chemical precipitation of wastewater

with excess lime may well immobilize the metals so that they do not exhibit EP toxicity (as well as any of the other characteristics), EPA is proposing to restore the listing of these three wastes for a number of reasons.

First, these wastes are not being proposed for relisting because they exhibit any of the hazardous waste characteristics; rather, these wastes are being proposed for relisting after considering the listing criteria in 40 CFR 261.11(a)(3) (i.e., concentration of toxic constituents in the wastes, ability of the toxicants to migrate from the waste, degree to which the toxic constituents bioaccumulate in ecosystems, plausible types of improper management, volumes of wastes generated, etc.). These criteria were the basis for the original listing. We therefore, believe it inappropriate to now designate these wastes as non-hazardous based solely on the EP toxicity characteristic. Second, EPA does not have information documenting the extent to which the nonferrous plants use excess lime to treat these wastewaters so some of these wastes may exhibit EP toxicity. Further, plants wishing to recycle (resmelt) wastewater treatment sludges may choose to use different chemical precipitants (or not to use excess lime) because use of excess lime may cause metal precipitants to become contaminated with calcium compounds and thus may not be readily extractable; on this last point, the Agency solicits comment and data on the extent that the chemical precipitation technology using 10 percent excess lime would discourage the recycling of any of these wastes.

The Agency, therefore, proposes to restore the listing of these three wastes. Nevertheless, the Agency specifically solicits comment and data on these wastes to determine whether or not they should continue to be listed (based on the original listing criteria) if the wastes are generated through the use of chemical precipitation and sedimentation using excess lime. In particular, we request the following information for each of the wastestreams:

- Total concentration of the listed constituents (i.e., cadmium and lead) on a representative number of samples;
- EP toxicity test results of the listed constituents on a representative number of samples;
- Total concentration and EP toxicity test results for the EP toxic metals (i.e., arsenic, chromium, and silver) and nickel on a representative number of samples;

³ Two of the residues listed previously are not being relisted based on our reevaluation of these

materials. See Section III. C. for more detailed discussion.

- Multiple extraction testing for all of the EP toxic metals and nickel on a representative number of samples;⁴

- Techniques used in managing these wastes (i.e., unlined piles, lined surface impoundments); in providing this information, commenters should be as specific as possible;

- Volume of waste generated;

- Ground-water monitoring data (if available);

- Percentage of wastewaters treated with 10 percent excess lime which is the basis for BAT guidelines for nonferrous smelting and refining wastewaters;

- Percentage of wastestreams treated using other precipitants;

- The amount of excess lime as a percentage of dry sludge.

Based on this information, we may conclude that the wastewater treatment sludges generated using 10 percent excess lime are in fact non-hazardous and therefore may narrow the scope of the listing accordingly.

C. Wastes That Are Recycled

1. Introduction

EPA recently promulgated a rule which, among other things, specifies which materials are solid and hazardous wastes when they are recycled. See 50 FR 614, January 4, 1985. (This rulemaking also specified general and specific management standards for most types of hazardous waste recycling activities.) A large percentage of the wastes that would be relisted under this proposal are land disposed. These include 69 percent of the acid plant blowdown from primary copper production, 97 percent of the sludge from treatment of wastewaters and/or acid plant blowdown from primary zinc production, 72 percent of the spent potliners from primary aluminum production, and 100 percent of the emission control dust/sludges from ferrochromium-silicon and ferrochromium production. However, three of the wastes are primarily recycled by being reclaimed. These include 100 percent of the surface impoundment solids from primary lead production; 100 percent of the electrolytic anode slimes/sludges from primary zinc production; and 100 percent of the cadmium leach residue treatment sludge from primary zinc production, (see Table 3).

⁴ The Agency has developed and is using the multiple extraction procedure (MEP) in evaluating certain delisting petitions to evaluate the long-term stability of wastes. The Agency believes it appropriate to also use it in evaluating listing decisions. See the public docket for this proposed rule which describes the methodology.

TABLE 3.—GENERATION OF HAZARDOUS WASTES IN THE PRIMARY NONFERROUS SMELTING AND REFINING INDUSTRIES

EPA Number (when listed) and hazardous waste	Tons/yr 1984	Immediately recycled (percent)	Recycle after storage (percent)	Land disposal (percent)
Primary copper—K064: Acid plant blowdown slurry/sludge	32,864	0	31	69
Primary lead—K065:				
Surface impoundment solids	48,193	50	50	
Air pollution control dusts	62,350	100		
Total	128,541			
Primary zinc and ZnO ₂ :				
K068: Wastewater treatment sludge	32,380	3	0	97
K067: Electrolytic anode slimes	N/A	57	43	
K068:				
Cadmium plant leach residue	N/A	12	88	
Saleable leach residue	2,400	67	13	0
Non-saleable leach residue	31,400	53	0	47
Clinker	54,000	0	17	83
Furnace residue	180,000	0	13	87
Total	297,780			
Primary aluminum—K068:				
Spent potliners	130,000	3	25	72
Wet sludges	92,750	1	7	92
Pot skims	11,911	19	0	81
Shot blast dusts	11,300	1	0	99
Total	245,966			
Primary titanium and TiO ₂ :				
Chloride process sludges ^a	350,000		* 10	90
Sulfate process sludges	100,000		100	0
Metal sludges	5,000			100
Total	455,000			
Ferroalloys:				
K090: FeCrSi emission control dust	3,300			100
K091:				
FeCr emission control dust	6,500			100
Other dusts, sludges, and residues	180,200			
Total	190,000			
Magnesium, zirconium/hafnium—Dusts, sludges and other residues	22,000			

¹ 72 percent sold.

² Another 2,000,000 tons/year of chloride process acids are disposed of by deep-well injection.

³ Sold as product.

Source: "Hazardous Waste Management Costs in Selected Primary Smelting and Refining Industries" (June 1985) and "Overview of Solid Waste Generation, Management, and Chemical Characteristics" for aluminum, copper, zinc, ferroalloys, titanium dioxide, zinc oxide, and zirconium/hafnium sectors. (Published as draft reports by PEI and Radan in 1984.)

In the January 4, 1985 rulemaking, we indicated that certain materials being reclaimed⁵ are solid wastes only when they are listed as hazardous waste. We also indicated that materials being reclaimed can be listed as solid wastes; however, in doing so, a number of factors must be considered which would demonstrate whether the material is handled as a commodity or a waste. In evaluating these three residues, we believe that the surface impoundment solids from primary lead production are solid wastes and therefore should be relisted, while the electrolytic anode slimes/sludge and cadmium plant leach residue from primary zinc production are not solid wastes and should not be relisted.

⁵ A material is reclaimed if it is processed to recover a usable product or if it is regenerated. See 40 CFR 261.1(c)(4); see also preamble discussion in 50 FR at 633, January 4, 1985.

2. EPA's Basis for Listing/Not Listing Surface Impoundment Solids from Primary Lead Production, and Electrolytic Anode Slimes/Sludges, and Cadmium Plant Leach Residue from Primary Zinc Production

As described above, the January 4 rules define which materials are solid and hazardous wastes when they are recycled. Among other things, the rules indicate that all spent materials⁶ (whether they are listed or exhibit one or more of the hazardous waste characteristics) are defined as solid wastes when they are reclaimed.⁷

⁶ A spent material is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing. See 40 CFR 261.1(c)(1); see also preamble discussion in 50 FR at 624, January 4, 1985.

⁷ Based on our initial survey, 28 percent of the spent potliners are recycled by being reclaimed. It could be argued that this percentage is significant and, thus, these materials are more product-like than waste-like and should not be listed. However,

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Sludges and by-products, however, are only defined as solid wastes when they are reclaimed if they are specifically listed.⁹ We limited the definition to listed sludges and by-products to avoid including sludges and by-products that are routinely processed to recover usable products as part of ongoing production operations. Nevertheless, sludges and by-products that are routinely reclaimed can be listed and thus be solid wastes if they are more waste-like than product-like. EPA will make this determination on a material-by-material basis considering: (1) How frequently the material is recycled on an industry-wide basis, (2) whether the material is replacing a raw material and the degree to which it is similar in composition to the raw material, (3) the relation of the recovery practice to the principal activity of the facility, and (4) whether the secondary material is managed in a way designed to minimize loss. See 50 FR at 641. In addition, the length of time materials are accumulated before being reclaimed is relevant since prolonged storage without recycling suggests that materials will not in fact be recycled, or are only of marginal recycling potential. See 50 FR at 635.

EPA has evaluated the three materials that are routinely reclaimed and, based on the information gathered, we believe the surface impoundment solids from primary lead production should be considered solid wastes and thus regulated as hazardous wastes, whereas the electrolytic anode slimes/sludges and cadmium plant leach residue from primary zinc production should not be considered solid and hazardous wastes. These conclusions are explained below.

Since spent potliners are defined as a spent material and since all spent materials are defined as wastes when they are reclaimed, these materials (whether or not they are listed) would be defined as solid wastes. In addition, it should be noted that the Agency has found that the principal purpose of recycling spent potliners is hazardous waste treatment, not cryolite recovery. Thus spent potliners are not considered to be recycled for regulatory purposes. 49 FR 8748, March 6, 1984 and 50 FR at 639641, January 4, 1985.

⁹ Under the recycling rules, the surface impoundment solids at lead smelting facilities would be defined as a sludge while the electrolytic anode slimes/sludges and cadmium plant leach residue from zinc production would be defined as by-products.

¹⁰ Non-listed sludges and by-products would be defined as solid wastes if they are accumulated speculatively. A material is accumulated speculatively if it is accumulating before being recycled unless a person can demonstrate that the material has recycling potential and can feasibly be recycled, and during a one-year calendar period, the amount of material recycled or transferred to a different site for recycling is at least 75 percent of the amount accumulated at the beginning of the year.

3. Surface Impoundment Solids Contained in and Dredged From Surface Impoundments at Primary Lead Smelting Facilities

This waste is generated by primary lead smelting plants when the solid particulates from wastewater/slurries (that are generated at various steps in the smelting process) are allowed to settle in surface impoundments. Based upon EPA's survey of approximately 50 percent of the industry, all of this material is recycled by being reclaimed. However, at least half of this material is recycled only after it is stored for long periods of time, up to several years. In addition, and more importantly, these sludges are not stored in a way commensurate with designation as products; rather, they are stored in an insecure fashion without any significant attempt to minimize loss. These sludges are stored in surface impoundments; surface impoundments containing secondary materials (as well as hazardous wastes) pose a particular threat to ground water and have always been one of the chief concerns of the hazardous waste management program. Further, the materials are constantly in the presence of liquids, creating the situation most conducive to forming leachate. Since most impoundments are unlined, and many are underlain by permeable soils, the potential for downward seepage of contaminated fluids into ground water is high.¹⁰ In addition, due to declining lead demands, there is a strong potential that these sludges may not be recycled.

Furthermore, in granting variances from classification as a solid waste, one of the factors the Agency will consider is the extent to which handling of the material (before being reclaimed) is designed to minimize loss. See 40 CFR 260.31(a)(4); 260.31(b)(3); and 260.31(c)(5). Where the materials are stored in open unlined piles, unlined impoundments, or leaking tanks and drums, it is less likely a variance will be granted (i.e., the more carefully a material is handled, the more it is commodity-like. (See 50 FR at 654-655.) We, therefore, believe that although most, if not all, of this material may eventually be reclaimed, it is managed in a waste-like manner and therefore should be listed as a solid waste.

¹⁰ See U.S. EPA, Report to Congress, Surface Impoundments and Their Effect on Ground Water Quality in the United States—A Preliminary Survey, EPA 5/7019-78-004 (1978), and U.S. EPA, The Prevalence of Subsurface Migration of Hazardous Chemical Substances at Selected Industrial Waste Disposal Sites, EPA/5301 SE 6341 (October 1977). See also substantial portions of the legislative history of the 1984 Amendments to RCRA.

4. Electrolytic Anode Slimes/Sludges and Cadmium Plant Leach Residue (Iron Oxide) From Primary Zinc Production

The electrolytic anode slimes/sludges are generated from the cleaning of electrolytic cells (i.e., they consist of gangue material that is passed through earlier process steps, but is not plated out or electrolyzed in the electrolysis step), while the cadmium plant leach residue is generated from leaching of process dusts with a high cadmium content. Like the surface impoundment solids discussed previously, all of these residues are recycled by being reclaimed. However, these materials are handled much more carefully than the surface impoundment solids. In particular, based on data recently submitted by the American Mining Congress (AMC),¹¹ these facilities (based on a survey of 100 percent of the production facilities) recycle 100 percent of these residues, and a large percentage are recycled immediately without storage. If the material is stored prior to recycling, it is stored for a maximum of 30 days; where there is storage, it occurs in devices that minimize loss of those residues (i.e., in metal hoppers, concrete basins, etc.) Furthermore most of these materials are recycled on-site, thus minimizing any loss during transportation. Therefore, we believe these materials are more commodity-like than waste-like and, therefore, are not proposing to relist them as solid and hazardous wastes. (It should be noted that these materials may still be solid and hazardous wastes if they are accumulated speculatively.)

IV. Analysis of Economic Effects of the Proposed Reinterpretation

The Agency conducted cost and economic impact studies to analyze the potential impact of this reinterpretation and to determine whether the proposed regulation is a major rulemaking (under Executive Order 12291) or would cause significant impacts on small business (pursuant to the Regulatory Flexibility Act). Although EPA determined that the proposal is not a "major" rule, detailed impact studies were performed for a substantial portion of the potentially affected industry sectors.

This section of the preamble is a summary of the cost and impact analyses documented in U.S. EPA, *Hazardous Waste Management Costs in Selected Primary Smelting and Refining Industries* (hereafter referred to as the Cost Document), *Economic Impact*

¹¹ See letter from James R. Walpole to Matthew A. Straus dated August 5, 1985, in the public docket for this rulemaking.

Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry (two volumes, hereafter referred to as the Economic Impact Report), and *Overview of Solid Waste Generation, Management, and Chemical Characteristics* (hereafter referred to as the Technical Studies). These documents are available in the public docket for this rulemaking.

A. Scope and Coverage of Economic Analysis

The Agency's economic impact analysis was conducted in two parts. The first part consisted of a detailed, compliance cost and economic impact analysis covering ten major primary metal smelting and refining sectors containing a total of 110 operating facilities producing 97 percent of total U.S. nonferrous and ferroalloy product tonnage in 1983. These ten sectors include all of the large volume sectors with previously listed smelting wastes (aluminum, copper, lead, zinc, and ferroalloys) as well as a broad sampling of five additional nonferrous metal industries shown by previous studies to generate potentially hazardous wastes (magnesium, titanium metal, titanium dioxide, zinc oxide, and zirconium/hafnium). According to U.S. Bureau of Mines and EPA survey data, the remaining three percent of nonferrous production is contributed by 21 metals sectors (400 facilities) not covered in the detailed impact assessment.

The second part of EPA's impact analysis involved a much less detailed screening study of these 21 sectors to isolate those sectors most likely to be significantly affected. Based on this screening, EPA believes that the major part of the total national cost impacts are accounted for by the 97 percent of the total production covered in our detailed analysis, and that the impact patterns in the covered sectors will generally be similar in the additional sectors.

B. Methodology and Data Gathering for the Ten-Sector Study

EPA first conducted a series of technical survey and sampling studies covering ten major ore-processing industries to determine the volume of wastes generated, identify those wastes which could be hazardous because they exhibit one of the characteristics defined in 40 CFR 261.2, estimate the volume of these hazardous wastes, and delineate the practices currently used to manage these wastes. The major findings are summarized in Table 3 above. Based on the technical survey and sampling results, a plant-by-plant

waste management assessment was then made for all 110 facilities in the sectors studied, utilizing plant survey data from over 80 individual facilities and waste sampling results from 50 facilities.

Where data were incomplete for surveyed plants or absent entirely for non-surveyed facilities, the types and quantities of hazardous and non-hazardous waste, current waste management practices, and production relationships were estimated from survey data at similar processing facilities. In the absence of site-specific information, EPA erred on the conservative side by assuming that all non-surveyed facilities did produce hazardous waste streams comparable in quantity and type to those found in the sample survey for other facilities with similar products.

EPA then estimated waste management costs for both current baseline practices (observed or assumed) and RCRA Subtitle C requirements at each of the 110 individual facilities. The difference between current baseline costs and total RCRA compliance costs is the incremental compliance cost for this regulation, providing the basis for evaluating economic impacts.

In selecting RCRA Subtitle C compliance practices for facilities, EPA assumed that companies would adopt a least-cost, conventional waste management option consistent with technical considerations relating to the facility's current practices and waste characteristics. All RCRA compliance options involving surface impoundments or landfills were based on a double synthetic liner technology consistent with the requirements of the Hazardous and Solid Waste Amendments of 1984. The analysis did not consider in-plant process changes, innovative recycling activities, or by-product options that might reduce compliance costs or turn net compliance costs into net savings.

The Agency estimated incremental compliance costs for storing, treating, transporting, and disposing of a waste stream. Costs include initial capital investment, annual operation and maintenance (O&M), capital investment for waste facility closure, and annual O&M costs for postclosure maintenance for a period of 30 years. Compliance costs were converted to an annualized cost form to provide the uniform annual cost that would be equivalent to the incurred cost stream. Initial investment costs were amortized over a 20-year lifetime, using the companies' weighted average cost of capital.

As part of the economic analysis, EPA also assembled extensive historical information on plant capacity and production levels, investment, prices, and financial conditions in order to base the impacts on more accurate projections. Where possible, EPA collected financial information for individual metals (for example, primary aluminum and primary copper). In some cases, lack of data forced consolidation of the financial characteristics of several metal subcategories (for example, lead with zinc and zirconium/hafnium with titanium).

Historical data from 1978 to 1983 were then used to estimate projected metal prices. In estimating rates of return, investment levels, production, and operating income, EPA used data from the three-year span of 1979 to 1981, on the assumption that this period provided the best indication of the performance of these plants under expected future conditions, and that 1982 and 1983 data reflected an atypically severe period of economic recession.

The plant closure methodology focuses only on specific plants having annualized compliance costs greater than one percent of sales. Previous Agency studies in support of effluent guidelines regulations under the Clean Water Act have shown few impacts with compliance costs below this level, but show occasional impacts when costs are more than one percent of sales. For plants with costs above this level, EPA then employed two plant closure tests: a net present value test and a liquidity test. The net present value test focuses on long-term profitability, with the viability of the plant being judged by a comparison of the net present value of its cash flow to its liquidation value. The liquidity test addresses short-term viability and focuses on affordability during the first few years of compliance. The closure analysis also assumes zero pass-through of compliance costs; that is, to avoid overlooking potential closures, plants are assumed to absorb all of the compliance costs as a direct increase in production costs (decrease in profit).

C. Costs of Compliance for Ten Major Sectors

EPA identified 67 manufacturing facilities (out of 110) in the ten sectors that will likely incur increased costs to comply with this regulation. Based on its industry survey, EPA concluded that certain facilities were not generating hazardous wastes, while others were either utilizing immediate recycling or were probably already in compliance with current RCRA management

requirements. Table 4 summarizes EPA's compliance cost estimates for each sector. For the ten sectors studied, we estimate total investment costs for

compliance at about \$57 million, and total annualized costs to be about \$20 million.

Production Costs and Prices

As indicated in Table 5, we estimate that the average increases in production costs and prices would be small to moderate (less than two percent) in all subcategories except primary zinc oxide (where we would expect a six percent increase in cost of production and almost five percent increase in prices). On average, however, the annualized cost of this rule amounts to less than 0.4 percent of current production costs or current prices.

Because of these generally low effects on prices (even the maximum effects), the study did not explore any further the possible effects on international trade. However, price pressures for basic commodities of the size indicated here are not likely to affect international market positions.

These results assess both the maximum impact on production costs and the maximum impact on prices. To assess production costs, we assumed zero pass-through of compliance costs to market prices, whereas to assess price changes we assumed a 100 percent passthrough of compliance costs. Therefore, these effects should be regarded as mutually exclusive estimates for purposes of presenting extreme possibilities.

Capital Investment and Rates of Return

The Agency projects the average investment cost as a percent of normal capital expenditures to range from nominal (one to four percent) in about half the sectors to very large (75 to 118 percent) in the zinc and zinc oxide sectors. This result may be partly due to the abnormally depressed state of capital expenditures in the 1979-81 base period for some of these sectors. Non-growth or declining sectors generally can be expected to show very high ratios in this column due to low base capital investment figures. These estimates were also based on the extreme assumption of zero pass-through of costs to prices, a worst-case assumption that also tends to increase these ratios.

Similar reasoning may in part explain the estimates regarding rates of return on investment. In general, results here fall into two categories: five sectors with maximum impacts on profit of about two percent or less, and four groups with compliance costs in the range of 10 to 31 percent of profits. In part, these high percentages are due to higher than average RCRA compliance costs (because of relatively large hazardous waste volumes compared to other sectors) and in part they are due to

TABLE 4.—SUMMARY OF ANNUALIZED COMPLIANCE COSTS

Subcategory	Number of plants			Annualized compliance costs ('000's dollars)		
	Total	Incurring costs	Range	Median	Average	Total
Primary aluminum	29	19	8-718	78	158	3,002
Primary copper	20	11	2-63	43	97	402
Primary lead	6	4	2-82	50	48	185
Primary zinc	6	4	15-1,270	44	343	1,372
Primary zinc oxide	3	2	13-1,711	862	862	1,724
Ferroalloys	29	13	1-444	128	184	2,398
Primary magnesium and primary zirconium/hafnium ¹	5	4	31-858	173	258	1,033
Primary titanium	8	8	18-311	35	97	484
Primary titanium dioxide	9	8	327-2,454	1,145	1,211	9,687
Industry total	* 110	* 67	1-2,454		303	20,287

¹ The Primary magnesium and primary zirconium/hafnium subcategories are merged to preserve confidentiality.

² Some plants produce more than one type of metal; therefore, the total is not the sum of all the numbers listed.

Source: "Waste Management Costs in Selected Primary Smelting and Refining Industries" (June, 1985), and "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June 1985).

Annualized compliance costs vary considerably, both among sectors and among individual facilities within each sector. The most extremely affected sector, titanium dioxide, faces expected total annual compliance costs of over \$9 million (almost half of the total costs for all ten sectors), with an average per facility cost of \$1.2 million per year. This contrasts, for example, with total compliance costs for the primary lead sector of \$185,000 per year (\$46,000 per year per facility).

Within individual industries, there are typically one or several plants with no projected compliance costs, either because of the non-hazardous character of the wastes or because of recycling or other management programs already in place. For plants incurring cost within a given sector, it is typical for some to

face only a few thousand dollars per year and others in the same sector to face several hundred thousand dollars or more per year in incremental compliance costs.

D. Economic Impacts for the Ten Major Sectors

Based on the compliance cost estimates and other economic variables for individual facilities in each of the ten sectors, EPA assessed several categories of possible economic impacts, including effects on production costs and prices, international trade, total investment requirements, profit (return on investment), and potential for plant closures and job losses. General effects are summarized in Table 5, while plant closures and employment losses are discussed below in relation to Table 6.

TABLE 5.—Summary of Economic Impacts

Industry subcategory	Total number of plants	Number of plants incurring costs	Average percent change in return on investment	Average percent increase in production cost	Average percent price change	Average investment cost as a percent of capital expenditures
Primary aluminum	29	19	-1.47	0.10	0.09	1.26
Primary copper	20	11	-1.35	0.03	0.03	1.36
Primary lead	6	4	-0.60	0.06	0.07	4.14
Primary zinc	6	4	-10.25	1.48	1.20	74.75
Primary zinc oxide	3	2	-30.79	6.02	4.89	118.50
Ferroalloys	29	13	-20.91	0.67	0.66	21.61
Primary magnesium and primary zirconium/hafnium ¹	5	4	-2.07	0.37	0.31	2.90
Primary titanium	8	8	-1.65	0.41	0.32	2.44
Primary titanium dioxide	9	8	-29.30	1.79	1.68	34.53
Industry	* 110	* 67	-4.80	0.35	0.33	6.54

¹ The primary magnesium and primary zirconium/hafnium subcategories are merged to preserve confidentiality.

² Some plants produce more than one type of metal; therefore, the total is not the sum of all the numbers listed.

Source: "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June, 1985).

lower than average baseline rates of return.

Plant Closures and Employment Losses

Based on its analysis, EPA concluded that one plant in the ferroalloy subcategory may close as a result of this

reinterpretation (Table 6). If realized, this closure would involve a loss of about 80 jobs at the closed facility. The potential production loss associated with closure represents approximately three percent of the total ferroalloy capacity.

TABLE 6.—SUMMARY OF PLANT CLOSURE ANALYSIS

Sector	Number of plants				Potential employment loss
	Total	Incurring costs	Failing screen	Potential closures	
Primary aluminum	29	19	0	0	0
Primary copper	20	11	0	0	0
Primary lead	8	4	0	0	0
Primary zinc	6	4	1	0	0
Primary zinc oxide	3	2	1	0	0
Ferroalloys	20	13	3	1	80
Primary magnesium and zirconium/hafnium	6	4	0	0	0
Primary titanium	6	5	0	0	0
Primary titanium dioxide	6	5	4	0	0
Industrial total	110	87	9	1	80

Source: "Economic Impact Analysis of Proposed Reinterpretation of Solid Waste Exemption for the Primary Smelting and Refining Industry" (June, 1985).

E. Screening Study Conclusions for 21 Other Metal Sectors

In addition to the ten sectors surveyed in detail for this rulemaking, EPA also conducted a more general screening study of the 21 remaining primary metal processing sectors. These 21 sectors include about 400 facilities that together produce just under 200,000 metric tons of metal per year. Of these 400 facilities, 309 (over three-fourths) are primary refiners of gold and/or silver. Few of these 400 facilities produce more than 5,000 tons of metal production per year, and the majority produce under 100 tons each.

The Agency's methodology for evaluating these sectors included a literature review, evaluation of EPA file data from previous EPA nonferrous industry surveys, and a general comparative cost analysis for average facilities in each sector based on current product cost. Where necessary, conservative waste generation parameters derived from our ten-sector survey analysis were employed to estimate a maximum RCRA impact for specific sectors. These extreme case assumptions included a proxy waste generation rate of one ton of hazardous waste per ton of metal production and an incremental waste management (compliance) cost of \$200 per ton of hazardous waste.

Results of this screening analysis suggest that, at most, five out of the 21 sectors could potentially incur moderate-to-significant impacts from this regulation. These five sectors—tungsten, vanadium, rare-earth metals, columbium, and mercury—could incur incremental RCRA compliance costs in

the range of one to six percent of total production costs under the extreme costing assumptions used for this analysis. Even at these maximum cost levels, EPA's plant closure analysis projects that plant closures would be highly unlikely for tungsten, rare-earth metals or mercury. For columbium and vanadium, it is not possible to rule out possible closures on the basis of the Agency's screening analysis; however, no closures can be projected from this analysis.

More definitive impact conclusions for any of these five sectors would require more detailed survey data for individual facilities on waste generation, waste characteristics (especially EP toxicity), and waste management practices (including current or potential recycling and by-product recovery opportunities).

EPA would appreciate further comment regarding the technical operation and possible RCRA impacts for facilities in any of the 31 sectors identified in the primary nonferrous metals industry. In particular, current data on total waste generation, physical and chemical properties of significant wastestreams, current management practices, and recycling or other by-product use of process residuals is requested for facilities producing primary tungsten, vanadium, rare-earth metals, columbium, and mercury.

V. Public Participation

Requests to participate in the public hearings should be directed on or before November 7, 1985 to Ms. Geraldine Wyer, Public Participation Officer, Office of Solid Waste, (WH-562), U.S. Environmental Protection Agency, 401 M

Street, SW, Washington, DC 20460. The hearing will begin at 9:00 a.m. with registration beginning at 8:30 a.m. The hearings will end at 4:30 p.m., unless concluded earlier. Oral and written statements may be submitted at the public hearings. Persons who wish to make oral presentations must restrict these to 20 minutes, and are requested to provide written copies of their complete comments for inclusion in the official record.

VI. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) of 1980 (Pub. L. 96-354), which amends the Administrative Procedures Act, requires Federal regulatory agencies to consider "small entities" throughout the regulatory process. The RFA requires an initial screening analysis to be performed to determine whether a substantial number of small entities will be significantly affected by a regulation. If so, regulatory alternatives that eliminate or mitigate the impacts must be considered.

This section presents the results of the Agency's small business screening analysis, based on a review of industry plant ownership patterns and estimated compliance costs. Based on this analysis, EPA has determined that there will not be a significant impact on a substantial number of small businesses.

In the nonferrous metals smelting and refining industry, the Small Business Administration (SBA) defines small entities based on employment levels. For most primary metal sectors, the employment criterion is fewer than 750; however, a higher threshold of 1,000 is used for some sectors. Based on the appropriate definition, for each sector, the Agency screened all 110 facilities in the ten sectors that were studied in detail and determined that, among these, only the ferroalloy sector contained facilities owned by small business enterprises. However, none of the ferroalloy facilities owned by small businesses were among those projected to incur costs due to this reinterpretation.

The remaining 400 nonferrous facilities not covered in our detailed impact analysis were also subjected to this detailed small business ownership screening. It appears that there are small business facilities in the primary silver and gold refining sectors; however, this sector is not expected to incur significant cost effects. Facilities in all of the remaining sectors all appear to be owned by large businesses or conglomerates and therefore would not be subject to the Regulatory Flexibility Act.

VII. Effect on State Authorizations

This proposal, if promulgated, will not be automatically effective in authorized States since the requirements will not be imposed pursuant to the Hazardous and Solid Waste Amendments of 1984. Thus, this reinterpretation will be applicable only in those few States that do not have interim or final authorization to operate their own hazardous waste programs in lieu of the Federal program. In authorized States, the reinterpretation will not be applicable until the State revises its program to adopt equivalent requirements under State law.

40 CFR 261.21(e)(2) requires States that have final authorization to revise their programs to adopt equivalent standards within a year of promulgation of these standards if only regulatory changes are necessary, or within two years of promulgation if statutory changes are necessary. These deadlines can be extended in exceptional cases (40 CFR 271.21(e)(3)). Once EPA approves the revision, the State requirements become Subtitle C RCRA requirements in that State.

States that submit official applications for final authorization less than 12 months after promulgation of this reinterpretation may be approved without including an equivalent provision in the application. However, once authorized, a State must revise its program to include an equivalent provision within the time period discussed above. The process and schedule for revision of State programs is described in amendments to 40 CFR 271.21 published on May 22, 1984. (See 49 FR 21678)

VIII. Compliance With Executive Order 12291

Sections 2 and 3 of Executive Order 12291 (46 FR 13193; February 9, 1981) require that a regulatory agency determine whether a new regulation will be "major" and, if so, that a Regulatory Impact Analysis be conducted. A major rule is defined as a regulation which is likely to result in:

- (1) An annual effect on the economy of \$100 million or more;
- (2) A major increase in costs or prices for consumers, individual industries, Federal, State, and local government agencies, or geographic regions; or
- (3) Significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based

enterprises to compete with foreign-based enterprises in domestic or export markets.

Today's proposal will have none of the above effects. Therefore, the Agency is not conducting a Regulatory Impact Analysis. The proposal has been submitted to the Office of Management and Budget (OMB) for review as required by Section 6 of Executive Order 12291. Any comments from OMB to EPA and any response to those comments are available for viewing at the Office of Solid Waste Docket, Room S212, U.S.E.P.A., 401 M Street, SW., Washington, DC 20460.

IX. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* Submit comments on these requirements to the Office of Information and Regulatory Affairs; OMB; 726 Jackson Place, NW.; Washington, DC 20503 marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements.

X. List of Subjects in 40 CFR Part 261

Hazardous waste, Waste treatment and disposal, Recycling, Reporting and recordkeeping requirements.

Dated: September 27, 1985.
Lee M. Thomas,
Administrator.

§ 261.32 Hazardous waste from specified sources.

Industry and EPA hazardous waste No.	Hazardous waste	Hazardous code
Primary copper: K084.....	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary lead: K085.....	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary zinc: K086.....	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
Primary aluminum: K088.....	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys: K089.....	Emission control dust or sludge from ferrochromium/silicon production.	(T)
K091.....	Emission control dust or sludge from ferrochromium production.	(T)

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTES

For the reasons set out in the preamble, it is proposed to amend 40 CFR Part 261 as follows:

1. The authority citation for Part 261 continues to read as follows:

Authority: Sections 1006, 2002(a), 3001, and 3002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6921, and 6922).

2. Section 261.4, paragraph (b)(7), is revised as follows:

§ 261.4 Exclusions.

(b) * * *

(7) Solid waste from the extraction, beneficiation and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore. For purposes of this paragraph, solid waste from the processing of ores and minerals only includes muds from facilities refining bauxite, phosphogypsum from phosphoric acid plants, and slag from primary metal smelters and phosphorus reduction facilities.

3. In § 261.32, add after entries for "Iron and steel" and before entries for "Secondary lead," the following waste streams:

4. In Appendix VII—Basis for Listing Hazardous Waste, add the following in the appropriate alphabetical and numerical sequence:

Appendix VII—Basis for Listing Hazardous Waste

EPA hazardous waste number	Hazardous constituents for which listed
K064	Lead, Cadmium
K065	Lead, Cadmium
K066	Lead, Cadmium
K068	Cyanide (Complexes)
K090	Chromium
K091	Chromium, Lead

[FR Doc. 85-23622 Filed 10-1-85; 8:45 am]

BILLING CODE 6560-50-M

**ENVIRONMENTAL PROTECTION
AGENCY****40 CFR Part 261**

[SWH-FRL 1675-1]

**Identification and Listing of Hazardous
Waste****AGENCY:** Environmental Protection
Agency.**ACTION:** Interim final amendment to rule
with request for comments.

SUMMARY: This regulation amends the hazardous waste regulations (40 CFR § 261.4(b)) to exclude from regulation under Subtitle C of the Resource Conservation and Recovery Act (1) solid waste from the extraction, beneficiation and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore and (2) cement kiln dust wastes. This action is being taken to bring the regulation into conformance with Section 7 of the recently enacted Solid Waste Disposal Act Amendments of 1980. The Agency, for the time being, is interpreting the scope of these exclusions broadly but is unsure that this interpretation is consistent with the intent of the Congress. Therefore, over the next 90 days, it intends to carefully examine the legislative history of the statutory amendment and consider the public comments being solicited by this action. Based on this review, the Agency, in subsequent rulemaking action, may further narrow the exclusion being promulgated today.

DATE: Effective Date: November 19, 1980.

Comment Date: This amendment is promulgated as an interim final rule. The Agency will accept comments on it until January 19, 1981.

ADDRESSES: Comments on the amendment should be sent to Docket Clerk (Docket No. 3001), Office of Solid Waste (WH-565), U.S. Environmental Protection Agency, 401 M Street SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: For general information, contact Alfred W. Lindsey, Office of Solid Waste, U.S. Environmental Protection Agency, 401 M Street SW., Washington, D.C. 20460, (202) 755-9185. For information on implementation, contact:

Region I, Dennis Huebner, Chief, Radiation, Waste Management Branch, John F. Kennedy Building, Boston, Massachusetts 02203, (617) 223-5777

Region II, Dr. Ernest Regna, Chief, Solid Waste Branch, 26 Federal Plaza, New York, New York 10007, (212) 264-0504/5

Region III, Robert L. Allen, Chief, Hazardous Materials Branch, 6th and Walnut Streets,

Philadelphia, Pennsylvania 19106, (215) 597-0980

Region IV, James Scarbrough, Chief, Residuals Management Branch, 345 Courtland Street NE., Atlanta, Georgia 30365, (404) 881-3016

Region V, Karl J. Klepitsch, Jr., Chief, Waste Management Branch, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 886-6148

Region VI, R. Stan Jorgensen, Acting Chief, Solid Waste Branch, 1201 Elm Street, First International Building, Dallas, Texas 75270, (214) 787-2645

Region VII, Robert L. Morby, Chief, Hazardous Materials Branch, 324 E. 11th Street, Kansas City, Missouri 64106, (816) 374-3307

Region VIII, Lawrence P. Guzda, Chief, Waste Management Branch, 1860 Lincoln Street, Denver, Colorado 80203, (303) 837-2221

Region IX, Arnold R. Den, Chief, Hazardous Materials Branch, 215 Fremont Street, San Francisco, California 94105, (415) 556-4606

Region X, Kenneth D. Feigner, Chief, Waste Management Branch, 1200 Sixth Avenue, Seattle, Washington 98101, (206) 442-1260

SUPPLEMENTARY INFORMATION:**I. Reason and Basis for Today's
Amendments**

On May 19, 1980, EPA promulgated regulations implementing Subtitle C of the Resource Conservation and Recovery Act (RCRA). See 45 FR 33066-33588. These regulations define solid wastes and hazardous wastes and establish requirements applicable to generators, transporters, treaters, storers and disposers of hazardous wastes. These regulations also require owners and operators of hazardous waste treatment, storage and disposal facilities to obtain RCRA permits.

The definition of solid waste is provided in § 261.2 of these regulations. The definition of hazardous waste is provided in § 261.3 of these regulations. Both definitions are sufficiently broad to include many solid wastes generated in the extraction, beneficiation and processing of ores and minerals, exclusive of mining overburden returned to the mine site (see § 261.4(b)(3).) Specifically, eight mining and mineral processing wastes (EPA hazardous waste Nos. FO13-FO15 and KO64-KO68) were listed as hazardous wastes in §§ 261.31 and 261.32 of the May 19 regulations (see 45 FR 33123-33124). In addition, other mining and mineral processing wastes may be hazardous wastes because they exhibit one or more of the characteristics of hazardous wastes in Subpart C of Part 261. By virtue of these definitions, a number of mining and mineral processing wastes will be subject to the regulations on November 19, 1980, the effective date of the regulations.

Additionally, some cement kiln dust waste could be hazardous waste under the regulations, if it exhibits any of the characteristics of hazardous waste in Subpart C of Part 261. Thus, some cement kiln dust waste may be subject to the regulations on and after November 19, 1980.

In Section 7 of the recently enacted Solid Waste Disposal Act Amendments of 1980 (P.L. 94-482, October 21, 1980), the Congress amended Section 3001 of RCRA to prohibit EPA from regulating certain wastes under Subtitle C of RCRA until after completion of certain studies and certain rulemaking. Among these wastes are (1) "solid waste from the extraction, beneficiation and processing of ores and minerals, including phosphate rock and overburden from the mining of uranium ore" and (2) "cement kiln dust waste." Accordingly EPA is today amending its regulations, at § 261.4, to incorporate this statutory change.

Several trade associations, representing the mining and cement industries, have asked EPA to amend its regulations by November 19, 1980, the effective date of these regulations, to incorporate the 1980 amendments concerning these wastes. In addition these associations have sought a clarification of the scope of the exclusion, particularly regarding the types of mining operations that are excluded. The statutory exclusion of mining wastes in Section 3001(b)(3) is limited to "solid waste from the extraction, beneficiation and processing of ores and minerals." One mining trade association has argued that this exclusion covers wastes from the exploration, mining, milling, smelting and refining of ores and minerals (including coal.)

In the interest of providing the mining and cement industries clear guidance on whether they are subject to the regulations, EPA is amending the regulations before the November 19 date. At the same time EPA questions whether the Section 3001(b)(3) was to be interpreted as broadly as the trade associations suggest. To resolve these questions, the Agency will have to examine carefully the legislative history and consult with the mining and cement industries and the public. The Agency could not accomplish this by November 19, 1980, given the extremely large workload with which it is burdened in developing the Phase II regulations, in responding to other requests for regulatory amendments and interpretations, and in responding to petitions for judicial review of the regulations.

Consequently, the Agency has decided to provide an immediate but temporary accommodation of the requests on this matter by promulgating today interim final amendments to § 261.4(b) which provide the requested exclusion using the language of the statutory amendments. Until the Agency takes further rulemaking action on this matter, it will interpret the language of today's amendments, with respect to the mining and mineral processing waste exclusion, to include solid waste from the exploration, mining, milling, smelting and refining of ores and minerals.

This exclusion does not, however, apply to solid wastes, such as spent solvents, pesticide wastes, and discarded commercial chemical products, that are not uniquely associated with these mining and allied processing operations, or cement kiln operations. Therefore, should either industry generate any of these non-indigenous wastes and the waste is identified or listed as hazardous under Part 261 of the regulations, the waste is hazardous and must be managed in conformance with the Subtitle C regulations.

II. Intended Reconsideration of Today's Amendments

The Agency fully intends to consider the appropriate scope of the statutory exclusion and may well take rulemaking action to lessen the scope of the exclusion being promulgated today. To aid in this consideration, the Agency is soliciting public comments on this matter. In particular EPA questions whether Congress intended to exclude (1) wastes generated in the smelting, refining and other processing of ores and minerals that are further removed from the mining and beneficiation of such ores and minerals, (2) wastes generated during exploration for mineral deposits and (3) wastewater treatment and air emission control sludges generated by the mining and mineral processing industry. EPA specifically seeks comment on whether such wastes should be part of the exclusion. EPA also seeks comment on how it might distinguish between excluded and non-excluded solid wastes.

If EPA narrows the scope of the exclusion being promulgated today in future rulemaking, those who generate, transport, store, treat or dispose of wastes affected by such a change will have six months to prepare for compliance with the regulations. This six month delay in the effective date is provided under authority of Section 3010(b) of RCRA.

In addition to the consideration of the scope of the exclusion discussed above,

the Agency will be considering regulatory amendments to implement other provisions of Section 3001(b)(3). Section 3001(b)(3)(B) recognizes EPA authority to issue regulations under Section 2002 of RCRA to place requirements on owners and operators of disposal sites for excluded wastes. These requirements concern identification and recording of information on the location of disposal sites as well as on the composition of the wastes that are disposed. EPA also invites public comment on how it should formulate such requirements.

III. Effect of Today's Amendments

Today's amendments relieve persons who generate or manage hazardous wastes produced in, and unique to, the exploration, mining, milling, smelting or refining of ores or minerals and persons who generate or manage a cement kiln dust waste from having to comply with EPA's regulations under Subtitle C of RCRA with respect to these wastes. Owners and operators of existing treatment, storage and disposal facilities do not have to submit a Part A, RCRA permit application by November 19, 1980, or comply with the interim status standards of Part 265 after November 19, 1980, with respect to such wastes. Also, owners and operators of new facilities for the treatment, storage or disposal of the subject wastes will not have to apply for and obtain a RCRA permit before constructing or operating such facilities.

Today's action does not relieve persons who generate or manage those wastes herein discussed from compliance with other Federal and State regulations including State regulations designed to implement Subtitle D of RCRA and State regulations being implemented in lieu of the Federal Subtitle C regulations where the State has interim or full authorization under Section 3006 of RCRA.

IV. Relationship to Final Listing of Certain Hazardous Waste in §§ 261.31 and 261.32

On November 12, 1980, in a separate rulemaking action (see 45 FR 74884), the Agency has finalized the list of most of the hazardous wastes listed in §§ 261.31 and 261.32. Included in this action was finalization of seven of the mining and mineral processing wastes mentioned above (EPA hazardous waste nos. F014-15 and K064-68). One of the wastes previously mentioned (F013) was deleted from the list of hazardous waste (§ 261.31) in that separate action. Because of the Agency's uncertainty with respect to the scope of the statutory amendments, as discussed

above, it has gone ahead with the finalization of the aforementioned listed wastes. Notwithstanding, the effect of today's action is to suspend those final listings of hazardous wastes, unless and until the Agency reduces the scope of today's exclusion in subsequent rulemaking action.

V. Coal Mining Waste

The Solid Waste Disposal Act Amendments of 1980 also included special provisions (Sections 1006(c) and 3005(f)) designed to coordinate regulation of coal mining waste with the requirements of the Surface Mining Control and Reclamation Act, 30 U.S.C. § 1201 *et seq.* EPA believes that these provisions present problems of legal interpretation which cannot be resolved by November 19, 1980. The Agency may seek public comment on its interpretation of those provisions in later rulemaking actions. This interim final rule does not attempt to interpret the scope of Sections 1006(c) and 3005(f). However, since coal is arguably a "mineral or ore" under Section 3001(b)(3), wastes from the extraction, beneficiation and processing of coal are excluded from RCRA Subtitle C regulation in today's amendment to § 261.4(b). Until EPA has had an opportunity to analyze the intended scope of the exclusion, the terms "extraction, beneficiation and processing" will be interpreted broadly to include coal exploration, mining, cleaning, classification, and other processing activities. As with other elements of this exclusion, EPA will be examining this exclusion, particularly the exclusions for classification, and other processing activities, in more detail later and may decide to narrow its scope.

VI. Effective Date

Section 3010(b) of RCRA provides that EPA's hazardous waste regulations and revisions thereto take effect six months after their promulgation. The purpose of this requirement is to allow persons handling hazardous wastes sufficient lead time to prepare to comply with major new regulatory requirements. The amendments promulgated today, however, serve to put in regulatory form what is already stated in statute. To establish a deferred effective date would only serve to confuse the regulated community. Consequently, the Agency is establishing an immediate effective date for this amendment.

VII. Request for Comments

The Agency invites comments on these amendments and on the issues discussed in this preamble and,

therefore, is providing a 60-day comment period.

Dated: November 14, 1980.

Douglas M. Costle,
Administrator.

Title 40 of the Code of Federal Regulations is amended by adding the following paragraphs to § 261.4(b):

§ 261.4 [Amended]

(b) * * *

(6) Solid waste from the extraction, beneficiation and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore.

(7) Cement kiln dust waste.

These amendments are issued under the authority of Sections 1006, 2002(a) and 3001 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 6905, 6912(a) and 6921.

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40 CFR Parts 261 and 262

[SWH-FRL 1675-3]

Hazardous Waste Management System: Identification and Listing of Hazardous Waste Standards for Generators of Hazardous Waste

AGENCY: Environmental Protection Agency.

ACTION: Interim final rules and request for comments.

SUMMARY: In regulations promulgated in May, 1980, establishing a federal program for the management of hazardous wastes, EPA excluded from full regulation persons handling hazardous wastes generated in small quantities (40 CFR 261.5, 45 FR 33066, 33120 (May 19, 1980)). This amendment clarifies the operation of the special requirements for hazardous waste generated by small quantity generators. Part 262 of the regulations has also been amended to ensure that these generators determine whether their wastes are hazardous.

DATE: Effective Date: November 19, 1980.

Comment Date: EPA will accept public comments on this regulation until January 19, 1981.

ADDRESSES: Comments on this regulation should be sent to the Docket Clerk [Docket Number 3001], Office of Solid Waste (WH-562), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

The public docket for this regulation is located in Room 2711, U.S.

Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. and is available for viewing from 9 a.m. to 4 p.m. Monday through Friday, excluding holidays. Among other items, the docket contains the background document for this regulation which has been revised to accommodate these amendments.

FOR FURTHER INFORMATION CONTACT: Robert Holloway, Office of Solid Waste, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, (202) 755-9200.

SUPPLEMENTARY INFORMATION:

I. Introduction

Pursuant to Subtitle C of the Resource Conservation and Recovery Act of 1976, as amended ("RCRA"), 42 U.S.C. § 6901 *et seq.*, EPA recently promulgated regulations establishing a comprehensive regulatory program for the management and control of hazardous wastes (45 FR 33066 (May 19, 1980)). The regulations, among other things, identify the characteristics of hazardous wastes, list particular wastes as hazardous, and establish standards for generators and transporters of hazardous waste and owners and operators of hazardous waste management facilities.

The regulations also define special requirements for hazardous waste generated by generators who produce less than 1,000 kilograms of hazardous waste during a calendar month. (See 40 CFR 261.5, 45 FR 33120). Hazardous waste generated by a small quantity generator is generally excluded from full regulation provided the generator stores, treats, or disposes of his hazardous waste in facilities specified as acceptable or ensures that his hazardous waste is delivered to such facilities. However, if a small quantity generator generates or accumulates acutely hazardous waste in quantities greater than specified, or if he accumulates more than a total of 1,000 kilograms of hazardous waste at any time, all quantities of hazardous wastes for which an exclusion level is exceeded are fully regulated.

Since the publication of the regulation, members of the regulated community have raised a number of questions concerning the operation of the small quantity exclusion. EPA has been persuaded that, in certain respects, the regulation is ambiguous and does not clearly address certain situations. In addition, the regulation contains certain technical errors which would cause the exclusion to operate in a manner not intended by the Agency or contrary to

the manner explained in the preamble to the regulation and the supporting materials. This amendment to the regulation is intended to clarify the original regulation and to correct the errors contained in it.

The revisions to the small quantity generator exclusion principally concern five aspects of the regulation: the determination of who is a small quantity generator; the requirements applicable to hazardous waste accumulated on-site; the requirements applicable to acutely hazardous wastes; the conditions applicable to wastes excluded from full regulation; and the requirements applicable to mixtures. The changes to the regulation are described in this preamble. The underlying rationale and basis for § 261.5 remain unchanged and are set forth in the preamble to the May regulation. (See 45 FR at 33102-33105.)

The background document supporting the requirements for small quantity generators has been revised to explain in greater detail the operation of § 261.5. In addition to describing the changes made by today's amendments, the background document provides guidance on the operation of regulations applicable to the small quantity generator.

It should be noted that the Agency has received a petition from the National Solid Waste Management Association ("NSWMA") which requests the Agency to make substantive revisions to § 261.5. EPA has noticed and requested comments on the petition. [45 FR 68409 (October 15, 1980).] The amendment to § 261.5 published today does not constitute the Agency's response to the NSWMA petition. EPA's action with regard to that petition will be the subject to further notice and/or rulemaking.

II. Amendments to the Regulation

A. Determination of Small Quantity Generator Status.

Section 261.5(a) of the May regulation set forth the general test for determining who may qualify as a small quantity generator:

* * * if a person generates, in a calendar month, a total of less than 1,000 kilograms of hazardous wastes, those wastes are not subject to regulation * * *

Since publication of the regulation, persons have raised two questions basic to the operation of this section: (a) should the section be keyed to generators rather than persons; and (b) what wastes should be counted in determining the amount of waste generated in a calendar month? The regulation has been revised to resolve both of these questions.